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Daniele CERRATO
Research Assistant
University of Salerno
Via Ponte don Melillo 84084 Fisciano (SA) Italy
+39 089963130
daniele.cerrato@unisa.it

Roberto PARENTE
Associate Professor of Management
University of Salerno
Via Ponte don Melillo 84084 Fisciano (SA) Italy
+39 089962331
Stoà Business School, Villa Campolieto Ercolano (NA)
rparente@unisa.it

AVAILABLE RESOURCES – NECESSARY RESOURCES: FILLING THE GAP

Introduction

Schumpeter's metaphor of "creative destruction" has deeply influenced the field of the research programs about entrepreneurship (Schumpeter, 1934). At the very centre of the analysis there is the entrepreneur, whose capability to attract and combine financial, technological and human resources in an innovative way is the key factor to allow new firms and businesses to develop at the expense of the old ones. Since then, one of the richest research fields has been about the traits of personal characteristics of the entrepreneur. A very partial list of these characteristics would include, in a casual order (Timmons, 1990):

- strategic orientation to the innovation;
- level of commitment to the new venture;
- capability of attracting financial resources;
- ability of negotiating and setting contracts;
- ability of distributing rewards;
- capability of facing ambiguity and assuming risks.

A significant shift in the research's agenda has been promoted by Stinchombe (1965), whose concept of "newness liability" shifted the attention from the subject (the entrepreneur) to the object, the new firm, that requires a peculiar attitude (entrepreneurship). Substantially, new ventures are considered very unstable, with a high risk of failure, because of their own newness. The concept of newness liability includes uncertainty and ambiguity about technology development, market potential, lack of team's commitment and many other factors. It appears clear, at this point, that new ventures systematically suffer of lack of resources, not only from the financial point of view. A substantial effort in acquiring and exploiting information, knowledge-based competencies, and reputation to be added to their existing resources is really necessary if they are keen to overcome the "newness liability". This statement, at a first glance, may seem quite at odds with the resource-based theory of the firm. According to this view, a firm's strategic position is determined by its own portfolio of distinctive resources and competencies (Wernerfelt, 1984). The opportunity-driven theory of entrepreneurship has mainly helped to overcome this apparent paradox. Scholars who have advanced this theory have made clear that resources, above all those knowledge-based, are very important in the early stage of the firm too (Bhide, 2000), and that the aim of filling the gap between resources controlled by the entrepreneur and resources necessary to the effective start-up is, in itself, the essence of entrepreneurship. Entrepreneurial behavior is then defined as the pursuit of opportunities without regarding resources currently controlled (Stevenson, Roberts and Grounsbeck, 1989). Unfortunately, knowledge-based resources are almost impossible to acquire on the market (Dierickx and Cool, 1989) and time and level of efforts needed to build them on their own are generally unaffordable for new firms. Here we have a clear vision of why partnership with established firms, especially those who control a large amount of knowledge-based resources, is of paramount importance for the new venture development. It has been proved that the capability to exploit external resources and establish close relationships with other firms has a very positive impact on new venture's performances (Baum, 1996; Fichman and Levinthal, 1991).

On the other side, cooperation between new ventures and big firms may be very rewarding in terms of opportunities they create to both sides, including big firms. Furthermore, Baum, Calabrese and Silverman (2000) demonstrated that, in order to boost performance, new ventures have not only to build alliances, but they have to manage them in a network perspective. The strategic network perspective tells us that new venture's performances are affected not only by the capability of drawing up alliances, but by the capability of arranging multiple linkages among them (Gulati, 1999; Gulati, Nohria and Zaheer, 2000). These findings are consistent with the popular view that alliances may be very important in enabling the enterpreneur to capture and to build on knowledge-based resources held by the partner (Contractor and Lorange, 1988).Unfortunately, new firms find quite difficult to build such a kind of alliance due to the lack of reputation they suffer (Doz and Williamson, 2002; Stinchombe, 1965). Establishing a partnership with a venture capitalist[1] is one of the main ways to overcome such difficulties. The role of venture capital in improving a new venture's reputation is well documented. Access to a venture capitalist's (VC's) external network of relationships is considered one of the key assets they give to a new venture.

Moreover we believe that the VC's role goes further to such an infusion of reputation. The kind of relationships they are able to build with a new venture greatly influences the level and the overall quality of knowledge-based resources that the new firm will be able to absorb from the large company. In the essence our hypothesis is that VC has a role not only in knowledge acquisition, but in knowledge exploitation as well (Dyer and Singh, 1998). Such a kind of conceptualisation has not been well developed in the literature yet. Nevertheless, some pathbreaking works should be mentioned. Hannan, Baron, Hsu and Kocak (2000) documented a sort of "imprinting" the VC creates on the new venture, as well as Hellman and Puri (2000) highlights the VC role in structuring the organization of the new venture.

Therefore, our paper will try to explore more deeply VC role, not only in establishing connections between new ventures and large firms, but also in influencing, directly or indirectly, the new ventures' acquisition of resources from large companies. Doing so, we will benefit from well established theory such as social capital, absorptive capacity, interorganizational learning and interorganizational relationship theory. Finally, we will outline a conceptual model, using some basic principles drawn from system theory, about the VC role in a new venture's knowledge acquisition and exploitation from the network of relationships, and we will try to formalise this model in a series of testable hypothesis.

[1] By "venture capitalist" we mean, in a large sense, all those subjects who play a significant role in the early stage of a new firm.

Knowledge acquisition and exploitation through strategic alliances

In resource-based perspective, sustainable competitive advantage depends on the endowment of heterogeneous firm-specific resources, which are accumulated within a particular context as a result of a firm's specific investments, history and growth's path. As Peteraf (1993) explains, resources which originate a competitive advantage are characterised by imperfect mobility[2], that is to say that they cannot be successfully used outside the firm in which they have been accumulated and deployed. Imperfect mobility is a consequence of a firm's unique processes of accumulation and investments and it is related to the fact that some resources cannot be traded on the market. Particularly, competencies and knowledge-based capabilities can be considered the result of specific and internal learning dynamics. This is the reason why most scholars underline that critical resources are accumulated rather than being acquired on the market (Dierickx and Cool, 1989).

However, the original theoretical framework of the resource-based view has been deeply revised in the last years, so as to take interorganizational learning into consideration and, consequently, extend the resource analysis, which was mainly focused on the internal endowment of a single firm[3]. In fact, research about cooperation and network organisational structures highlights that competitive advantage and growth's patterns are related non only to the resources that firms can individually develop, but even to the set of resources they can exploit leveraging on alliances. This is the reason why scholars are paying more and more attention to the analysis of processes by which resources and competencies are developed as a result of both dyadic and network relationships (Dyer and Singh, 1998).

The role of strategic networks and interfirm linkages proves that the atomistic view of a firm's behaviour is becoming increasingly inadequate to explain the processes of value creation and the growth's patterns (Gulati, Nohria and Zaheer, 2000). In this new perspective, focused on strategic networks, it seems to be naive to distinguish between totally internal and totally external way of developing resources and capabilities. Consequently, "hybrid" (between internal and external) modes of development are arising.

An important contribution about interfirm dynamics has been proposed by Dyer and Singh (1998), who shifted the focus of the analysis of the sources of competitive advantage from a resource-based perspective to a relational view, where the capability of establishing interfirm relationships is emphasised. Their approach is rooted in resource-based view as it shares the same basic assumption, that resources are heterogeneous among firms. They argue that firms can rely on relational capabilities to acquire and exploit knowledge. Doing so, firms can have access to knowledge assets otherwise not available and exploit business opportunities that go further the limits of their resources endowment. In a relational perspective, alliances may represent the only way to develop some strategic resources and, at the same time, allow firms to concentrate on their core competencies (Prahalad and Hamel, 1990). Network resources considerably affect a firm's strategic behaviour, as they modify the set of opportunities which a firm can exploit (Gulati, 1999).

Generally, literature about interorganizational networks emphasises trust as a factor which enhances relationships and makes them stronger (Gulati, 1995a; Kale, Singh and Perlmutter, 2000), in opposition to the traditional view of interfirm interactions, built on the concept of opportunism and short term orientation. Trust typically characterises relationships based on sharing competencies

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[2] See Barney (1991) and Peteraf (1993) for discussions about the characteristics of resources which originate a sustainable competitive advantage.
[3] Starting from this point, several mainstreams such as *Competence-based View* (Hamel and Heene, 1991), *Knowledge-based View* (Kogut and Zander, 1996), *Dynamic Capabilities Perspective* (Teece, Pisano and Shuen, 1997) have been developed.

and information. Steady and "trust-based" relationships can be useful to the processes of value creation of all the organisations involved in the network. Trust can be defined as a particular form of knowledge that has a double aim, that is to favour both cohesion among people within the firm and relationships with external actors (Vicari and Verona, 2000).

Examining the role of interfirm relationships, many scholars tried (and are still trying) to answer the following question: which factors affect the extent to which external knowledge can be acquired and exploited through strategic alliances ?

Many research works, which refer to relational capital (Chung, Singh and Lee, 2000; Kale, Singh and Perlmutter, 2000), network resources (Gulati, 1999) as well as to social capital (Koka and Prescott, forthcoming; Yli-Renko, Autio and Sapienza, 2001; Tsai, 2000) and absorptive capacity (Cohen and Levinthal, 1990; Lane and Lubatkin, 1998), provide interesting insights and notable contributions to answer the above mentioned question.

All these streams of theory are particularly important to the topic of this work, that is to analyse the conditions that affect the success of new ventures and the contributions of actors different from the entrepreneur. As Doz and Williamson (2002) point out, alliances can be considered as powerful entrepreneurship accelerators and a significant evidence of this is represented by the growing proportion of alliances between new ventures and large, established firms. In general, alliances can increase the chances of survival of new ventures (Lipparini and Grant, 2000).

In the analysis of a new venture's relational capability, the first element to take into consideration is the personal and professional network to which the new entrepreneur belongs. However, literature about the dynamics of resource acquisition by new ventures does not solely refer to economic exchanges, but to social transactions, too. Starr and McMillan (1990) highlight the importance of social contracting for the co-optation of the resources that a new venture needs. Particularly, they refer to resources which are under-exploited in other contexts, and to legitimacy resources, which constitute a strategic support for start up success, because of the "liabilities of newness" of new ventures. Social contracting is based on social assets, such as friendship, trust, gratitude, obligation, which allow the entrepreneur to acquire resources at a lower cost than economic transactions would require instead.

Secondly, in order to answer the question, we should also consider that the concept of resource acquisition itself must be correctly specified. In fact, even resources traded on the market are not "ready to use" because they need to be adapted and put together with the other firm's resources so as to set up a coherent system. Therefore, tradable resources require an organisational action which makes them firm-specific (Dierickx and Cool, 1989), i.e. integrates them in the whole set of firm's resources.

In terms of organizational competencies, we can say that resource acquisition and exploitation require that a firm has the capacity of both "external" and "internal" integration (Vicari and Verona, 2000). This consideration may be helpful to understand that the acquisition of external resources is only the first part of the process which could start from an interfirm relationship. In fact that must be necessarily followed by the combination of new resources within the firm's existing set in order to enhance the value of the whole bundle of resources.

Moreover, moving from the evidence that knowledge transfer is first of all a social process, literature about alliance formation largely refers to the concept of social capital, generally defined as the resources that a firm can obtain thanks to its network of relationships. Most studies about this theme (Yli-Renko, Autio, Sapienza, 2001; Tsai, 2000; Koka, Prescott, *forthcoming*) conceptualise social capital as a multidimensional construct, in which it is possible to identify a *structural* component, related to the form and the structure of network and the position of the firm within it, and a *relational* component, related to the quality of the relationships among partners. A firm's potential, in terms of possibility of acquiring external resources, depends on both the above mentioned elements. Specifically, Koka and Prescott explain that the benefits deriving from social capital can be articulated in information volume, information diversity and information richness. Moreover, already existing relationships make the development of new linkages easier. About this point, Gulati (1995b; 1999) underlines that the process of alliance formation is deeply path dependent. In fact, former linkages affect the kind and the number of the relationships which may be developed in the future. Opportunities for learning by a certain partner are major when the firm has had previous relationships with that partner because repeated ties create the conditions to the development of organizational routines and of a common platform for sharing information (Nelson, Winter, 1982).

As regards specifically the development of a new venture, an interesting attempt to "operationalize" the role of relational capability in the acquisition of external knowledge resources has been made by Yli-Renko, Autio and Sapienza (2001) in their research on young technology-based firms. They show that the capacity of acquiring knowledge resources from other firms "depends on the existence of external knowledge, on the ability of the firm to recognize and assess the value of the knowledge, on repeated, intense interaction, and on the willingness of the firms to share information" (p. 589). They develop a model, rooted in relational perspective (Dyer and Singh, 1998), in order to explain that knowledge acquisition and knowledge exploitation depend on the social capital which is at the basis of relationships between new ventures and large firms[4].

Social capital builds a context, which encourages the formation of strategic alliances as it constitutes the basis for a common language and culture. A common platform for sharing knowledge is, by its side, the pre-condition for establishing ties among firms. For this reason, there is a tight relationship between social capital and the capacity of firms to have access to resources available in external organisational fields. This capacity has been described in literature as "absorptive capacity", that is the ability to: a) understand new external knowledge; b) to assimilate it; c) to apply it to commercial ends (Cohen and Levinthal, 1990).

A lot of research works, related to different fields of study[5], have been developed as an attempt to operazionalize such a construct (Lane and Lubatkin, 1998; Lane, Salk and Lyles, 2001). These studies move from the segmentation of absorptive capacity into the three components originally identified by Cohen and Levinthal. From a review of these works, we can affirm that there are some key factors useful to understand the dynamics related to absorptive capacity and help operationalize the concept itself. These factors can be summed up as follows:

- in order to explain to first component of absorptive capacity, that is the ability to recognize new external knowledge, it is important to pay attention to elements such as trust, strategic relatedness, cultural compatibility, similarity in basic knowledge among partners;

[4] Building on a conceptualization of social capital as a multidimensional construct Yli-Renko, Autio and Sapienza (2001) highlight that:
- the *structural* component of social capital (operazionalized as network ties) determines the amount of resources potentially available in a relationship;
- the *relational* component ("social interaction") determines the knowledge actually disclosed by the partner;
- the efficiency of the process of knowledge transfer depends on the *cognitive* component (which they operazionalize as "relationship quality").

[5] For example, see Lyles and Salk (1996), Lane, Salk and Lyles (2001) for a detailed analysis of absorptive capacity in international joint ventures.

- secondly, the ability to assimilate new external knowledge largely depends on similarities of "students firm" and "teacher firm" organisational structures and processes as well as by management support from "teacher firm";
- finally, the application of new knowledge acquired is deeply influenced by similarity in partners' business strategy and "dominant logic" (Bettis and Prahalad, 1995) as well as by familiarity of "student firm" with the "teacher firm" set of organizational problems.

As a synthesis, all the above mentioned elements affect both the amount of knowledge potentially available for the new venture and the efficiency of process of knowledge transfer. What we argue in the following parts of this work is that, in order to understand knowledge acquisition and exploitation by the new venture, it is necessary to go further the exclusive consideration of the dyadic relationship between new ventures and large established firms and focus the analysis upon the role the venture capitalist, intended as an actor able to:

- facilitate knowledge transfer leveraging on its social capital and organisational competencies;
- enhance new venture's absorptive capacity thanks to its positive impact on all the three components of such a construct.

VC's role in early stage ventures

Venture capitalists' role in early stage venturing development usually goes further the infusion of financial resources in the new venture. Their presence in a new venture brings a wide range of relationship-based services such as (Fried and Hisrich, 1995):

- operating services;
- networks;
- reputation;
- moral support;
- general business knowledge;
- discipline.

Due to their nature[6] and to their style in approaching new ventures[7], the extension of their role may vary, but this is largely a matter of degree instead of substantial differences. Independently from their structure and style, VC services impact at least on three different domains of early stage ventures:

- organisational structure;
- education to strategic thinking;
- partnership with established firms.

If we consider that each of these domains has been proved to have a direct and deep impact on firm's performance, we will have a clear idea how much important VC "non-financial" role is for the new venture.

Organizational structure. Early stage ventures are usually characterised by poorly defined organizational structure. A list of most common organisational pitfalls in a new venture could be very long. First at all, entrepreneurial team may miss some important roles; in high-tech new ventures, for example, managerial competencies are quite often completely absent. Roles and

[6] Together with formal venture capital funds, there are many other kinds of subjects that play, more or less, a similar role, including Business Angels, Incubators Centres, and Academic spin-off centres.
[7] Bhide and Stevenson (1992) identify five different styles in supporting new ventures: silent investor; reserve force; team member; coach; controlling investor.

hierarchical positions inside the entrepreneurial team, and between them and their workers could be not well articulated or be overlapped. Furthermore, human resource policies and rewarding systems are usually ambiguous and may undermine capability to attract best people and retain commitment from hired resources. Each of these organisational problems plays a role in rising new ventures' rate of mortality, which is abnormal compared to the established firms.

VC role in fixing up the problem related to the process of a new venture's professionalization has been well documented (Hellmann and Puri, 2000). New firms backed by a VC are more likely and/or faster to professionalize themselves. This happens either via the "soft" (or supportive action) or via the "hard" facet (or control action) of the VC. On the first side VC action is supportive with regard to recruitment process, overall human resource policies, adoption of stock option plans and involvement of outside marketing and sales manager. On the other side VC action takes the form of CEO replacement, passing from the new venture's founder to an external professional CEO, if new ventures performance fall behind the expectations.

VC and education to strategic thinking. Whereas entrepreneurship is related to the identification and exploitation of entrepreneurial opportunity, strategic management is related to the capability of creating the highest value from these opportunities[8]. Despite their closeness, the two fields of entrepreneurship and strategic management have developed on a parallel track, substantially ignoring each other. Only recently a strategic entrepreneurship approach, i.e. entrepreneurial approach with a strategic perspective, has been advocated as essential condition to wealth creation (Hitt, Ireland, Camp and Sexton, 2001). If the entrepreneur needs to develop a strategic perspective, capability in arranging a strategic analysis is a very important step. In fact, strategic analysis may lower the risk related to the degree of novelty (i.e. ignorance, absence or misunderstanding of information) associated to a new venture, with regard to market, technology, and many other items (Sheperd, Douglas and Shanley, 2000). The point here is not only that a VC may have such information or can brockerage them quite easily. The point is that its rigorous model of analysis of a new venture, directly or indirectly, helps the entrepreneur focus the attention on the suitable kind of information to be found and on how to combine them in the right way. Therefore, the entrepreneur needs to clarify his business idea and its main components. Strategic thinking, in particular, is promoted by the VC close scrutiny. Entrepreneur must prove that there is a market, that its products can sustain competition and that its cost structure is compatible with the foreseen revenues. Above all VC's role consists in developing a sense of discipline in strategic thinking that might heavily influence further strategic management development (Fried and Hisrich, 1995).

Partnership with established firms. According to the opportunity-driven theory of entrepreneurship, searching, acquiring and exploiting knowledge-based resources from established firm is of paramount importance for new ventures success. This assumption has been proven true by some scholars in the field of entrepreneurship. Sarkar, Echambadi and Harrison (2001), for example, found that new venture's alliance proactiveness leads to major market-based performances. As a counterprove Booz, Allen and Hamilton's database on alliance formation patterns shows that alliances are playing an increasing role in the entreprenurial process, and that a large number of these initiatives involve large, well established firms. Accordingly with Doz e Williamson, there are at least four reasons why entrepreneurial venture and large enterprises link each other through alliances (Doz and Williamson, 2002):

- complementarity of competencies. New enterprises brings in imagination and creativity while large one brings in the culture of efficiency;
- opportunity to reduce time to market for new products and services;

[8] According to Hax and Majluf (1991) strategic management is about the explicitation of a firm's vision of its strategic posture (mission, business segmentation, horizontal and vertical strategy) and the capabilities to build a wide range of formal management system and leadership style.

- capability to deliver more complete customer solutions yet keeping the company focus on a specific product;
- opportunity to assemble different sets of technological capabilities.

Unfortunately such benefits are not easy to achieve for new enterprises: one of well known obstacles is that new firms very frequently miss the kind of reputation necessary to successfully approach a large enterprise. Here we have one of the most quoted benefit for a new enterprises to have a VC on board. Their presence engenders legitimacy to the new firm. The active involvment of VC, who put its money in the venture, signals to third parties (including potential allied) that new venture enjoys very favourable perspective for the future. Furthermore, they may directly or indirectly sponsor alliances with large companies, leveraging on their network relationships. It is not a case that among the different kinds of partnership an entrepreneur can create, partnership with a VC is the most important one in term of positive impact on performance (Lee, Lee and Pennings, 2001).

Venture capitalist's role can be conceptualized as a key role in establishing and reinforcing a new venture's network rich in structural holes[9]. Entrepreneur attitudes in building competitive advantage from the exploitation of structural holes can be frustrated if subjects that might form structural holes refuse to connect with new ventures. In other words, a venture capitalist may increase a new venture's social capital which can give them very important information benefits. The assumption is that VC usually has a very strong social capital, i.e. a rich system of players trusting its behaviour and/or obligates to support him (Burt, 1992), and that is in its own interest to pass through the value of its social capital to the new ventures.

The widely recognised role of venture capitalist in increasing social capital seems to address only one of the Dyer and Singh's (1998) assumption about the value of alliances, i.e. knowledge acquisition. The question of knowledge exploitation seems so far left entirely in the hands of the entrepreneur. Our assumption is, instead, that venture capitalist has a role in knowledge exploitation, too. The first two roles we illustrated before, organisational structure and education to strategy thinking, influences the ability to exploit external knowledge-based resources, and this influence may be very deep, giving an imprinting to the new venture.

According to the ecological theory of competition, organisational structure and practices imprinted in a firm define its repertoire of behaviour facing competition, and on the other side seriously limit its capability to adapt to fundamental changes in its environment (Hannan and Freeman, 1977). Early organisation building is one of the most important phases in which imprinting takes place (Hannan, Baron, Hsu and Kocak, 2000) and therefore we can expect that a subject playing a key role in this step heavily affects longer-term performances of the new firm. Empirical evidence supports this view, and shows that a VC plays a key role in early organisational building. Either through a "soft" supportive action, or a "hard" power-based action, VC influences professionalization of a new venture that gives an imprinting to the new venture itself (Hellmann and Purj, 2000). If we extend the concept of imprinting, assuming that organizational imprinting influences not only the way a firm competes in the market but its capability to cooperate with other firms, too, we can expect VC to influence new venture capability to exploit knowledge-based resources from alliances.

As direct consequences of this constructs, VC's role must be rationalized not only in terms of accruing social capital to the new ventures, but in terms of imprinting, as well. Whereas the first

[9] A structural hole occurs when there is a link between two or more subjects with complementary resources of information. When these subjects are connected through a third individual as entrepreneur, this gap is filled, resulting in an important advantage for the entrepreneur (Burt, 1992).

seems to be linked to knowledge acquisition, or the overall amount of "potential" benefits that come from information located in a network, the second one is more linked to knowledge exploitation, or the real value that the entrepreneur is able to extract from this set of information. In other words, we can say that venture capitalist's role matters not only in terms of energy available to the new system (i.e. the new venture), but also in terms of level of energy acquired (and, on the contrary, dispersed) from this new system.

A framework of VC's role in enhancing new venture's knowledge acquisition and exploitation from large companies

Some interesting insights, useful to analyse the dynamics of start-up, can be drawn from the system analysis applied to organisations. Recently Italia literature provided new developments in this stream of research (Golinelli, 2000). The concept of firm as a viable system is particularly interesting. According to Beer (1985), a viable system is a system that survives, and holds mechanisms and opportunities to grow and learn, to develop and adjust itself, in order to become more and more syntonic with its environment. If we consider a firm as a viable system, then we should ask ourselves which is the kind of energy necessary to make the system viable and thriving in time. The organisational learning stream of research suggests that knowledge is the primary force for the growth and prosperity of a firm, and that the organisational learning is responsible for knowledge accumulation (Senge, 1990). An interesting evolution of the organisational learning approach is the "autopoiesis" metaphor of the firm (Vicari, 1991). This approach has recently been developed thanks to some pathbreaking theories coming from the field of cognitive theory and of sociology. According to this view of the firm, knowledge is not a resource similar to the others, but represents the vital energy that give shapes to all other firm's resources. New knowledge creation happens through a learning process in which pre-existing knowledge (internal or external to the firm) is combined and reproduced in new forms. The firm itself, along its history, can be viewed as a stock of knowledge-based resources that evolve time by time. Only if this stock of resources grows in time, the firm can develop and escape the entropy phenomenon that affects all the living systems.

Putting this concept as an equation we can say:

$$EA = S2/S1$$

Where EA= level of energy acquired (or negative entropy imported in the system);
S2= stock of firm's resource at time 2;
S1= stock of firm's resource at time 1.

The level of energy acquired (EA) can be viewed as the net effect of two opposite flows; the flow (EI) of resources made available for the system, that increase the overall EA's level; the flow of resources (ED) dissipated or depreciated in time, and that decrease the overall EA's level (Fig. 1). We can write this as follows:

$$EA = EI - ED$$

It is important to note that both EA, EI and ED have to be measured in terms of knowledge-based resources[10]. Moreover either positive and negative flows of resources are influenced by the same set of general factors: a) firm's behaviour (B) and ; b) relationships with the environment (R) (Vicari, 1991, pp. 113-122).

Therefore, we have:

$$EI = f(B,R) \; ; \; ED = f(B,R)$$

In fact, a wise behaviour and good relationships may add value to the firm, whereas wrong behaviour and bad relationships may destroy it. Considering the great importance that alliances with

[10] Knowledge-based resources can be splitted into three different kinds: competencies, external trust (reputation), internal trust (commitment).

large firms have on new ventures success, our main interest is to analyse energy flows related with such alliances. Therefore, we assume that:

EI= available energy, or knowledge-based resources that have been considered by the large firm as available for the new venture;

ED= dispersed energy, or knowledge-based resources that have been made available from the large firm, but that have been dissipated by the new venture;

EA= knowledge-based resources that new venture has acquired and exploited.

Since, as we previously illustrated, VC influences both behaviour and relationships, we can assume that a VC plays a role in governing new ventures' flows of knowledge-based resources.

Starting from the basic equation we can formulate some propositions that might be measured in order to confirm the assumption we expressed as regards the VC's role.

Hypothesis 1

$$EI= f(SC_{vc}, IR_{vc/lf})$$

The amount of knowledge-based resources (competencies, reputation and commitment) that large companies put at new firm's disposal, is function of the VC's social capital[11] (SC_{vc}) and of the interorganizational efforts[12] in building relationships between VC and the large firm ($IR_{vc/lf}$).

A fraction of this flow of knowledge-based energy is usually dispersed or not totally utilised. Therefore we can formalise our second hypothesis.

Hypothesis 2

$$ED= f(AC_{nv/vc}, IR_{nv/vc})$$

The level of energy put at disposal by the large firm, but dispersed or not fully utilized (ED), is function of the absorptive capability[13] of the new venture related to the VC ($AC_{nv/vc}$) and of the interorganizational efforts[14] in building relationships between new venture and VC ($IR_{nv/vc}$). Therefore, the algebraic sum of EI and ED defines the level of energy acquired (EA) by the system (the new venture) that affects the survival and growth of the system itself.

$$EA= f(SC_{vc}, IR_{vc/lf}, ACA_{nv/vc}, IR_{nv/vc}).$$

Hypothesis 3

$$TL= f(SC_{vc}, IR_{vc/lf}, AC_{nv/vc}, IR_{nv/vc}).$$

The level of energy acquired by the new ventures is related to time-lag (TL) needed to pass from a rough business idea to a real start-up. A higher level of energy acquired is responsible of shorter time-lag.

Hypothesis 4

$$PA= f(SC_{vc}, IR_{vc/lf}, AC_{nv/vc}, IR_{nv/vc}).$$

The level of energy is related to available future options (PA) between that the new venture can choose in the future. A higher level of energy acquired is responsible of the enlargement of available paths.

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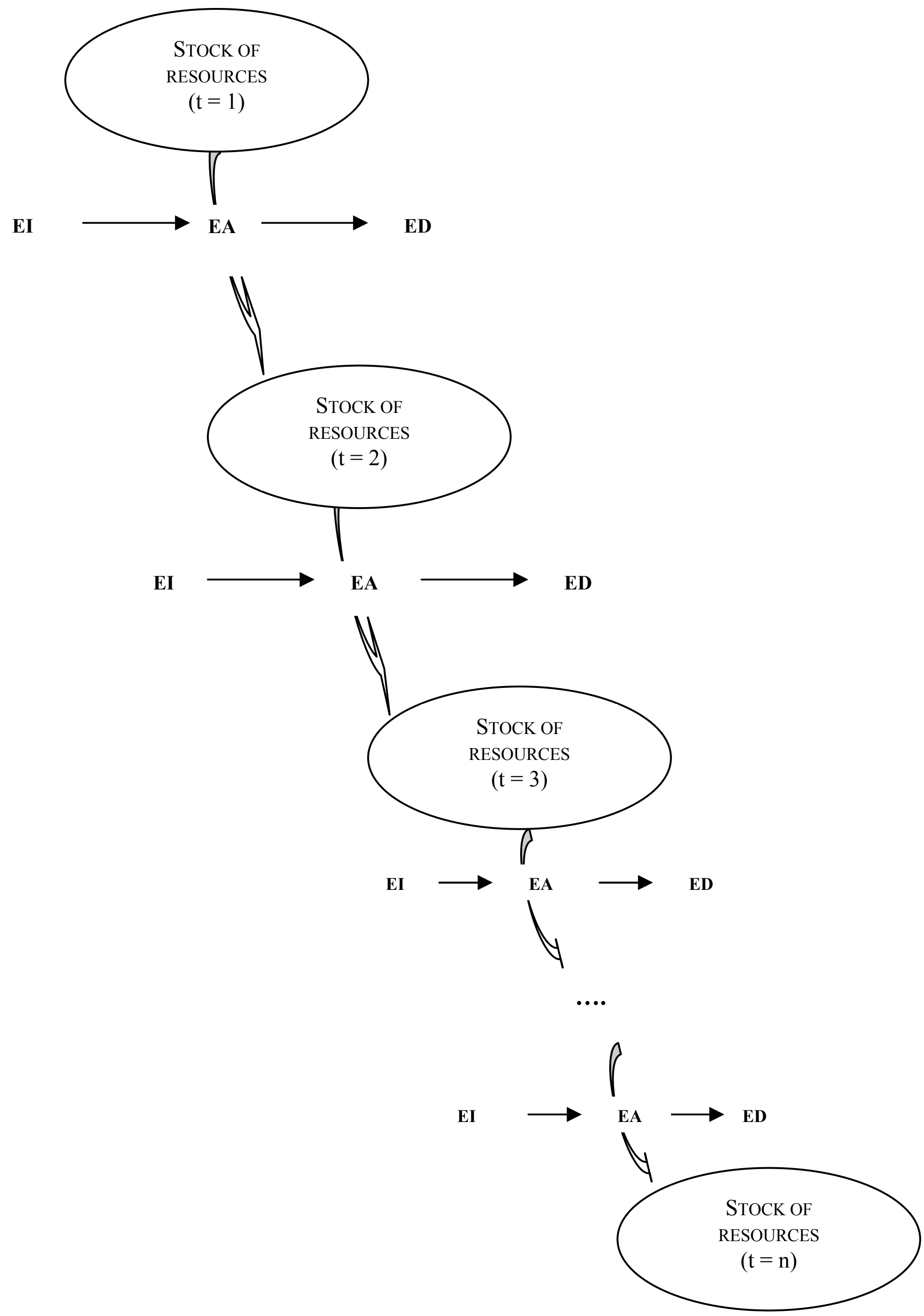
[11] Social Capital can be considered as a multidimensional construct, consisting of a structural component and of a relational component.

[12] Interorganisational efforts can be measured in terms of range, frequency, and depth of information exchange.

[13] According to our analysis conducted in section 3, ACnv/vc can be measured by the level of VC contribution to new venture's organizational structure and strategic thinking

[14] See footnote 12.

Fig. n° 1: Stocks and flows of resources in a new venture



EI = transferable resources from large firms to new venture
EA = resources acquired and deployed
ED = resources potentially available but not totally deployed

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